

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claims 1-10 (Canceled)

11. (Currently Amended) A probe station for testing a specimen, the probe station comprising:

a housing defining a vacuum chamber having an interior space within which a specimen is placed for testing;

a carrier for supporting the specimen during testing;

a probe assembly located within the interior space for testing the specimen;

and

an environmental control system associated with the housing and including a heat transfer fluid that substantially maintains the interior space of the housing at a desired temperature for testing.

12. (Currently Amended) The probe station of claim 11 wherein ~~the housing comprises a vacuum chamber and~~ the environmental control system comprises a conduit disposed within the chamber for carrying the heat transfer fluid therein.

13. (Original) The probe station of claim 11 further comprising a drive system for shifting at least one of the probe assembly and the carrier to a test position; and

the environmental control system comprises a conduit positioned about the drive system for transferring heat generated therefrom to the fluid and out of the interior space so that the specimen may be tested at a desired temperature.

14. (Currently Amended) The probe station of claim 11 wherein the environmental control system comprises at least one fluid carrying conduit that carries the fluid ~~to pass~~ through the housing to transfer heat from within the interior space to the fluid and out of the housing.

Claims 15-16 (Canceled)

17. (New) A probe station for testing a specimen, the probe station comprising:

a vacuum chamber within which a specimen is tested;

a carrier for supporting the specimen during testing, the carrier being disposed in the vacuum chamber;

a probe assembly located within the vacuum chamber for probing the specimen; and

an environment control system including conduit disposed at least partially within the vacuum chamber, the conduit entering the chamber in at least one location and exiting the chamber in at least one location and carrying a heat transfer fluid to and from the vacuum chamber so that the probe station may

substantially maintain a desired temperature within the vacuum chamber during testing.

18. (New) The probe station of claim 17 wherein the conduit includes at least one tube carrying a liquid that transfers heat to or from the vacuum chamber so that the desired temperature of the chamber may be maintained.

19. (New) The probe station of claim 17 further comprising a high resolution microscope for viewing the specimen within the vacuum chamber.

20. (New) The probe station of claim 19 wherein the high resolution microscope is one of a scanning electron microscope, a focus ion beam instrument or an X-ray probe.

21. (New) The probe station of claim 19 wherein the high resolution microscope includes a shutter for reducing interference caused by the operation of the microscope during testing of the specimen.

22. (New) The probe station of claim 17 wherein the vacuum chamber has first and second wall members, with each wall member being electrically conductive and insulated from one another so that the probe station may be configured in a variety of different guarding and shielding arrangements.

23. (New) The probe station of claim 17 wherein the probe assembly includes a probe and manipulator for positioning the probe with respect to the specimen.

24. (New) The probe station of claim 17 wherein the probe assembly comprises a plurality of probes and a plurality of manipulators for positioning the probes.

25. (New) The probe station of claim 24 wherein the plurality of probes are movable independent from one another so that a variety of testing may be done on the specimen.

26. (New) The probe station of claim 17 further comprising a drive system for shifting at least one of the probe assembly and the carrier to a predetermined test position.

27. (New) The probe station of claim 26 wherein the drive system includes a motor and a shield for deflecting heat or energy generated by the motor during the operation thereof to allow for precision movement of the probe assembly or carrier.

28. (New) The probe station of claim 26 wherein the drive system includes heat insulating components or components with low thermal coefficients of expansion to allow for precision movement of the probe assembly or carrier.

29. (New) The probe station of claim 26 wherein the environmental control system includes conduit positioned near the drive system for transferring heat to or from the drive system to allow for precision movement of the probe assembly or carrier.

30. (New) The probe station of claim 17 wherein the environmental control system includes a conduit positioned near at least one of the carrier or probe assembly for transferring heat to or from the carrier or probe assembly to allow for precision movement thereof.

31. (New) A probe station for testing a specimen, the probe station comprising:

- a housing defining a vacuum chamber within which a specimen is tested;
- a pump connected to the housing for creating at least a partial vacuum in the vacuum chamber;

- a carrier disposed at least partially within the vacuum chamber for supporting the specimen during testing;

- a probe assembly located within the vacuum chamber for probing the specimen;

- a high resolution microscopy instrument extending at least partially into the housing for acquiring an image of at least one of the specimen or probe assembly; and

- an environment control system having at least one fluid carrying line carrying a heat transfer fluid into the housing at a first position and out of the housing at a second position, the heat transfer fluid helping maintain a desired temperature within the vacuum chamber during testing of the specimen.

32. (New) A probe station according to claim 29 wherein the environmental control system includes a plurality of fluid carrying lines each